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ABSTRACT

Data from the 1990-91 Tennessee school district report cards are used to reexamine some relationships noted in previous studies (G. C. Bobbett and others, 1992) and to gain new insights because of modifications to Tennessee's report cards from 1989 to 1991. Report cards now report the Tennessee Comprehensive Assessment results and have added more school district characteristics, expanding analyses from 8 to 15 variables. Several conclusions of the 1988-89 study were reinforced by the current investigation. Policymakers at all levels need to consider that few of the individual inputs commonly associated in people's minds with the production of student achievement have much impact on student performance, and that, with the exception of student attendance and, perhaps, per-pupil expenditure, treatment of any isolated variable will have little effect. Available evidence suggests that variables most worthy of consideration are: (1) organizational culture; (2) student motivation; (3) parental involvement; (4) instructional methodology; (5) curricular features; and (6) other factors that may have a significant influence on student performance. Report cards are only as good as the assessment used to determine student performance. The current Tennessee report cards do a reasonable job of reporting the status of schools, but they still lack meaningful information on which to make decisions for improvement. Nine tables present analysis results. Four appendixes add information about the variables in table form. (SLD)

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EVALUATION OF THE CATEGORIES CURRENTLY USED IN REPORT CARDS WITH STUDENT OUTCOME

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EVALUATION OF THE CATEGORIES CURRENTLY USED IN REPORT CARDS WITH STUDENT OUTCOME

I. INTRODUCTION

In 1991, the investigators completed a series of studies of the data reported in Tennessee's 1988-89 school district report cards. In those studies which have been reported in several papers (Bobbett, et al., 1992a, 1992b), and at meetings, the relationships among eight school district variables (average attendance, average professional salaries, county per capita income, expenditure per student, average daily membership, percent of oversized classes, percent of students on free or reduced lunches and percentage of professional educators on upper Career Ladder levels II and III) were examined, and the relationships between each variable and student outcomes were determined.

The study reported herein is an extension of the previous study. In this investigation, 1990-91 report card data were used. Because of that, it was possible to revisit some of the relationships in the previous study and to gain new insights because of modifications in Tennessee's report cards from 1989 to 1991.

In 1990-91, Tennessee brought "on line" its new Tennessee Comprehensive Assessment Program (TCAP), thereby creating a new set of student outcome measures. Further, TCAP results were reported in greater detail than previous outcome data. Report cards now report TCAP assessment results at substantially more grade levels within the school districts than was previously done.

The 1990-91 report cards also added more school district characteristics; thereby enabling the investigators to expand their analyses from 8 to 15 variables. The seven added variables include number of schools in the district, percent of enrollment change, percent regular diplomas awarded, percent honors diplomas awarded, percent vocational students, percent special education students, and percent Chapter I students.

While certain comparisons in the results of the two studies can be made, some findings cannot be compared because of the differences in the outcome measures used in the different years and because no comparable data were available in certain areas in the

Table 1. Testing Information For Widget City Schools (1988-89 Report Card Data)

Testing Information for Widget City		Grade Level	1987-88	1988-89	State Average
Basic Skills First Achievement Test (percent score)	Reading	3	90	88	80
		6	82	80	77
		8	92	91	81
	Math	3	91	90	82
		6	67	71	66
		8	77	84	66
Stanford Achievement Test (Stanine score) 7-9 = High 4-6 = Average 1-3 = Low	Reading	2	6	7	6
		5	6	6	5
		7	6	6	5
	Math	2	7	8	6
		5	7	6	6
		7	7	7	5
	Spelling	2	6	7	6
	Language	5	6	6	5
		7	6	6	5
	Environment	2	7	7	6
	Science	5	6	7	6
		7	6	6	5
	Listening	2	7	7	5
		5	6	6	5
	Social Science	7	6	6	5
		7	6	6	5
Stanford Test of Academic Skills (TASK 2) 7-9 = High 4-6 = Average 1-3 = Low	Reading	9	6	6	5
		12	6	6	5
	Math	9	6	6	5
		12	6	6	5
	English	9	7	6	5
		12	6	7	5
	Science	9	7	6	5
		12	6	6	5
Tennessee Proficiency Test (% Students Passing)	Language	9	88	92	78
	Math	9	95	98	90
	Both	9	86	91	76

Table 2. General Information Found In a Typical School District's Report Card; 1988-89.

System Information for Widget City		Grade Level	1986-87	1987-88	1988-89	State Average
Number of Schools		K-12	5	5	5	12 ^a
Average Daily Membership		K-12	3,291	3,394	3,372	5,874
% Student Attendance		K-12	95.7	95.3	95.1	93.6
% Enrollment Change		9-12	-13.0	-16.1	-15.2	-24.7
% Oversized Class		K-12	1.2	1.4	2.3	3.8
% of Students on Free or Reduced Price Lunch		K-12	23	21	21	42
Expenditures per pupil		K-12	\$2,718	\$3,299	\$3,501	\$3,304
County Per Capita Income		K-12	"	"	\$12,819	\$12,878
% Elementary Schools Accredited by SACS		K-8		100.0	100.0	29.1
% Secondary Schools Accredited by SACS		7-12	100.0	100.0	100.0	64.9
Professional Educator Information						
% Professionals on Career Ladder Levels II & III		K-12	22.9	21.9	25.6	14.8
Average Professional Salary		K-12	\$25,198.60	\$26,085.44	\$30,804.37	\$26,756
Student Information						
% Diplomas Granted	Regular	12	90.6	68.7	75.8	81.8
	Honors	12	49.6	26.7	20.0	8.5
	Special Education	12	1.8	1.4	1.5	1.9
	Certificate of Attendance	12				0.9
	Seniors not Receiving Diploma in Spring Graduation	12	2.7	3.2	2.7	6.9
% Students in Vocational Education Courses		7-12	33.0	40.9	41.0	45.5
% Students in Special Education		K-12	12.1	11.3	12.1	14.2
% Chapter 1 Students		K-12	13.3	15.5	12.4	11.9

1988-89 report cards. Tables 1 and 2 present a school district report card as it appeared in 1988-89, and Tables 3 and 4 represent a 1990-91 school district report card.

II. METHODOLOGY

Although the 1990-91 report cards provided test results for grades 2 through 10, the investigators organized the data into four levels (elementary, grades 2-5; middle, grades 6-8; high school, grades 9-10; and system) rather than treat each grade level separately. grades 2-5 became the elementary level.

Mean student outcomes (MSOs) were created (by converting reported scores to Z scores and computing their means) for each level by combining TCAP data for the

grades defined within the particular level. In the case of the high school level, the MSO was created by combining 10th grade TCAP data with the scores reported for the 9th grade Tennessee Proficiency (TPT). These MSO were treated as dependent variables, as was the case in the analysis of 1988-89 report card data. The 15 school district characteristics studied were treated as independent variables that influence student outcome. To guide the study seven research questions were developed:

1. How do school district characteristics currently reported relate to student academic achievement results?
2. Are there differences in the relationships between dependent and independent variables at different school levels (elementary, middle, high school, system)?
3. How do reported school characteristics relate to each other?
4. When rank ordered on the basis of student outcomes, how do school districts within the state perform in terms of reported school and community characteristics?
5. Do the reported school district characteristics appear to represent all or most factors that influence student academic achievement?
6. Is there evidence of major change in student academic performance from one school level to another within school districts?
7. How might the findings of this study inform educational policy at state and local levels?

Five of the seven questions replicate questions posed in the previous study. Questions 2 and 6 are new questions representing the capacity available in the 1990-91 report cards to analyze data at several levels within the school districts and the capacity of the current study for comparison with the earlier study results. Question 7 is a modification of a question posed in the earlier study, because only two test batteries (rather than three) were used in the current analysis.

As in the earlier study, most but not all districts reported comprehensive scores on both TCAP and TPT. These districts (120) constitute the sample for analysis.

Twenty school district characteristics were actually reported in the 1990-91 report cards. In responding to research Question #1, the investigators first evaluated all characteristics to determine their value as independent variables. A *Kaiser* test of variable sample adequacy was applied to each variable at each level (elementary, middle, high school, and system). Five characteristics were eliminated from further study: percent elementary schools accredited by SACS, percent high schools

Table 3. Testing Information For Widget City Schools Too (1990-91 Report Card Data.

Widget Too Schools

TENNESSEE COMPREHENSIVE ASSESSMENT PROGRAM (TCAP)		Reading	GRADE								
			Year	2	3	4	5	6	7	8	10
			State Avg.	na	na	na	na	na	na	na	na
			1990-91	7	6	6	6	6	7	7	6
		Language	GRADE								
			Year	2	3	4	5	6	7	8	10
			State Avg.	na	na	na	na	na	na	na	na
			1990-91	7	6	6	6	6	6	7	6
		Math	GRADE								
			Year	2	3	4	5	6	7	8	10
			State Avg.	na	na	na	na	na	na	na	na
			1990-91	7	7	7	6	6	7	7	7
		Science	GRADE								
			Year	2	3	4	5	6	7	8	10
			State Avg.	na	na	na	na	na	na	na	na
			1990-91	7	6	7	6	6	7	6	6
		Social Studies	GRADE								
			Year	2	3	4	5	6	7	8	10
			State Avg.	na	na	na	na	na	na	na	na
			1990-91	7	6	7	6	6	6	6	6
Grade 9											
TENNESSEE PROFICIENCY TEST (TPT)		Language	Year	With Special Ed.				Without Special Ed.			
			State Avg.	na				na			
			1990-91	90				91			
		Mathematics	Year	With Special Ed.				Without Special Ed.			
			State Avg.					na			
			1990-91	98				98			
		Both	Year	With Special Ed.				Without Special Ed.			
			State Avg.					na			
			1990-91	88				90			

Testing Information

Students in Tennessee are given two types of tests.

Students were introduced this spring to the **Tennessee Comprehensive Assessment Program (TCAP)**. This program mandates a customized, norm referenced and criterion referenced test for grades 2 through 8, a norm referenced test for grade 10, and the **Tennessee Proficiency Test**.

The customized test will allow each teacher to assess progress of students during the school year with a minimum amount of testing time. The program will generate consistent types of test scores from grade to grade. The norm referenced data will allow longitudinal status of individual, school, system, and state growth in

order to evaluate and improve programs and curricula.

The criterion referenced data will report the mastery, partial mastery, and non-mastery of tested domains for each school year. Although the objectives for the Tennessee Proficiency Test has been updated, the rules and regulations governing the test will remain the same.

The Tennessee Proficiency Test measures minimum skills in mathematics and language arts. Students must achieve a passing score of 70 percent correct on both the math and language arts tests in order to fulfill one of the requirements for receiving a regular diploma. Students take the test for the first time in the ninth grade.

Table 4. General Information Found In A Typical School District's Report Card, 1990-91

Widget Too

System Information		Grade Level	1988-89	1989-90	1990-91	State Average
Number of Schools		K-12	5	5	5	na
Average Daily Membership		K-12	3,372	3,9290	3,436	na
% Student Attendance		K-12	95.1	95.8	95.6	na
% Enrollment Change		9-12	-15.2	-12.1	-20.1	na
%Oversized Classes		K-12	2.3	1.4	1.5	na
% of Students on Free or Reduced Lunches		K-12	21.0	22.0	23.0	na
Expenditure per Pupil		K-12	\$3,501	\$3,942	\$4,073	na
County Per Capita Income		K-12	\$12,819	\$13,662	\$14,192	na
% Elementary Schools Accredited by SACS		K-8	100	100	100	na
% Secondary Schools Accredited by SACS		7-12	100	100	100	na
Professional Educator Information						
% Professionals on Career Ladder II and III		K-12	25.6	28.6	30.8	na
Average Professional Salary		K-12	\$30,804.37	\$31,590.60	\$33,753.00	na
Student Information						
% Diplomas Granted	Regular	12	75.8	73.4	79.5	na
	Honors	12	20.0	22.0	18.6	na
	Special Education	12	1.5	0.9	1.0	na
	Certificate of Attendance	12		.09		na
	Seniors not Receiving Diploma in Spring Graduation	12	2.7	2.8	1.0	na
% Students in Vocational Education Courses		7-12	41.0	41.3	39.3	na
% Students in Special Education		K-12	12.1	12.6	13.6	na
% Chapter 1 Students		K-12	12.1	12.6	8.7	na

Other Information:

Percent of Student in Attendance (%SA). This figure shows the average percent of student in attendance daily in your school system for the 1990-91 year.

Percent Enrollment Change (%EC). This figure shows the percent change in a group of student who started in the ninth grade four years ago and should have completed the twelfth grade this year. It is a four year average. Decreases happen when students drop out of a school, move away, graduate early, fail a year, or leave school for other reasons not listed.

Percent of Oversized Classes (%OC). This figure shows the percent of classes in all grade levels which had waivers for being over the maximum class size. Maximum class sizes in Tennessee are 25 for grades K-3; 28 for grade 4, 30 for grades 5-6; 35 for grades 7-12; 23 for vocational.

Percent Students on Free or Reduced Lunches (%FRL): Students whose family income meets certain criteria are eligible for free or reduced price lunches. This figure shows the percent of student in your school system who receive free or reduced price lunches.

Expenditure per Pupil (EPP): This figure shows the average number of dollars spent for each pupil in average daily attendance for your school system.

County Per Capita Income (CC): This figure represents the per capita personal income for the county in which your school system is located. The most recent figures available from the U.S. Bureau of Economic Analysis are for 1988.

Percent Elementary/Secondary Schools Accredited by SACS (%ES): Schools may elect to seek accreditation from the Southern Association of College and Schools (SACS) in addition to receiving state approval. This agency recognizes quality schools, maintains a list of accredited schools and requires a continuing school improvement program.

Percent Professionals on Career Ladder Levels II and III (%CL): This figure shows the percent of professional staff in your school system who have met the standards for Career Levels II and III. These are the upper rungs of Tennessee's Career Ladder program. The number includes regular classroom teachers, guidance counselors, librarians, and administrators.

Average Professional Salary (APS): This figure shows the estimated average salary for all certificated personnel in your school system.

Diplomas Granted: These figures show the percent of the twelfth grade class receiving different types of diplomas. Some school systems have requirement that may exceed these standards. Tennessee students may receive four kinds of diplomas:

High School Diploma (D-HS): Awarded to students who (a) earn 20 units of credit, (b) make passing scores on all components of the Proficiency Test and (c) are satisfactory records of attendance and conduct.

Honors Diploma (D-HO): School systems may offer an optional diploma to students who meet increased requirements established by the State Board of Education. The requirements include accelerated English, math, science and

social studies, and a 3.0 grade point average.

Special Education Diploma (D-SE): Awarded to students who have satisfactorily completed an individualized Education Program and who have satisfactory records of attendance and conduct, but who have not passed all components of the Proficiency Test.

Certificate of Attendance (D-CA): Awarded to students who have earned 20 units of credit and who have satisfactory records of attendance and conduct, but who fail to meet Proficiency Test standards.

Students Not Receiving Diploma in Spring Graduation (D-NR): This figure represents students who will receive their diplomas after completing summer school or who failed to complete high school.

Percent of Students in Vocational Education Courses (%VO): This figure shows the percent of the school system's average daily membership enrolled in one or more vocational education courses. Students enrolled in more than one vocational courses are counted only once.

Percent of Students in Special Education (%SE): This figure shows the percent of students in your school system who are receiving special education services.

Percent of Chapter 1 Students (%CH1): Chapter 1 is a federally funded program to assist students in the areas of reading and mathematics. This figure shows the percent of student receiving services under Chapter 1.

accredited SACS, diplomas granted in special education, certificates of attendance granted as diplomas, and seniors not receiving diplomas in Spring graduation. Appendix A presents the results of this analysis.

Two correlation procedures were used to generating a response to research question #1. A Pearson Product Moment correlation enabled comparison of variables, and Guttman's partial correlation allowed the researchers to develop percentages of influence as a means of assessing relationships between independent and dependent variables.

To answer research question #2, the correlations (Pearson and Guttman's) were generated for each independent-dependent variable relationship at each of the four defined school levels.

Research question #3 was answered by computing correlations among independent variables. A coefficient of determination (r^2) showed the levels of interaction between categories (variables).

Research question #4 required the rank ordering of school districts within the sample by system MSO. Comparisons of rankings at all school levels (elementary, middle, secondary) could be made. Only the top 10 and bottom 10 districts in the rankings are reported.

Research question #5 required no further statistical analyses. The partial correlation coefficients and related percentages of influence previously developed provided the necessary data.

To answer research question #6, changes in MSO upward and downward of one standard deviation from school level to school level were first computed using Z-scores as the basis for the computation. To further clarify the results, school-level rankings were developed.

A final question was used primarily as a means of focusing conclusions and implications. Report cards on schools and the data included in them generate policy discussions. The findings of this study when added to those of the earlier one should be useful to policymakers at all levels.

III. FINDINGS

Findings of the study are reported in two ways: (A) a descriptive analysis of the 120 school districts used in the study, and (B) responses to the research questions.

A. Descriptive Analysis of School Districts

A profile of the 120 school districts qualifying for inclusion in the study by Report Card category was developed. For each category, the report card (state) mean score, standard deviation (SD), number of schools submitting data and ranges of scores or numbers were compiled. Table 5 presents the profile.

1. System Information

All school districts the sample (120) reported scores for TCAP and for the TPT. When special education students were included in the TPT results, 87.1 percent of all students passed the language test, 90.8 percent passed math, and 84.0 passed both. When special education students were excluded from the report, 92.2 percent of the students across the state passed the language test; 94.9 percent passed the mathematics test and 89.7 percent passed both tests.

Most of the 120 school districts studied reported all data for the 20 report card categories. One hundred and three reported percentage of oversized classrooms, 48 reported percentage of elementary schools accredited by SACS, 83 reported percentage of secondary schools accredited by SACS, 119 reported percentage of professionals on Career Ladder II & III, and 66 reported certificate of diplomas awarded. The statewide profile shows approximately 13 schools per district with an average daily membership of 6,624 students. In 1990-91, student attendance averaged 94.4 percent statewide; enrollments in the districts decreased from the preceding year by an average of slightly more than 23 percent. In these districts, approximately 4.4 percent of all classes exceeded state prescriptions for class size. Almost 42 percent of all students state wide received free or reduced lunches. Per pupil expenditures averaged \$3,442 per district, and county per capita income averaged \$12,371.

2. Professional Educator Information

Approximately 17 percent of all Tennessee educators had achieved Career Ladder Levels II or III by 1990-91, and average professional salary was \$27,465. As

few as 6.8 percent of the teachers in a district and as many as 42.5 percent had achieved upper Career Ladder status, and average salaries reported ranged from \$23,262 to \$36,505.

3 Student Information

Eighty percent of all diplomas awarded in the state in 1990-91 were Regular diplomas; almost 14 percent were Honors diplomas; slightly more than 2 percent were Special Education diplomas, and about 1 percent of all students leaving school were granted certificates of attendance. More than 6 percent of students graduating did not receive their diplomas during spring graduation.

Almost 48 percent (47.6%) of Tennessee's students were enrolled in vocational education classes during the year investigated. Slightly more than 16 percent were special education students, and another 16 percent were participants in Chapter 1 programs.

4. Comparison of the 1990-91 Profile with 1988-89 data.

A few comparisons of data from the 1990-91 profile (see Table 5) with data from 1988-89 (see Table 6) are useful. In 1988-89, 76 percent of students taking the TPT passed the language test, 90 percent passed mathematics, and 76 percent passed both sections. Passing rates for the TPT had risen substantially in language (M=76%, 92%, respectively), and in passage of both language and mathematics tests by 1991 (M=76%, 84%, respectively).

Between 1989 and 1991, average per pupil expenditures had not risen much(≈\$100), and average county per capita income had fallen by about \$500. Average professional salaries of educators had increased about \$700. The percentage of students receiving free or reduced lunches remained static at approximately 42 percent, and the number of oversized classes dropped by only 3 tenths of one percent.

B. Findings Pertinent to Research Questions

1. How do school district characteristics currently reported relate to student academic achievement results?

Table 5. A Report Card Profile of 120 Tennessee School Districts Sampled, 1990-91 data.

	<u>SD</u>	<u>Max</u>	<u>Min.</u>	<u>n</u>	<u>District mean</u>
<u>Tennessee Proficiency Test (TPT)</u>					
<u>With Special Education</u>					
Language	6.9	99	66	120	87.1
Math	5.8	100	68	120	90.8
Both	8.3	99	58	120	84.0
<u>Without Special Education</u>					
Language	5.6	100	72	120	92.2
Math	4.6	100	74	120	94.9
Both	5.6	100	72	120	89.7
<u>System Information</u>					
Number of Schools	20.1	161	1	120	12.9
Average Daily Membership	12,415	103,987	378	120	6,624
% Student Attendance	1	97.4	91.2	120	94.4
% Enrollment Change	9.4	3.6	-48.3	120	-23.0
% Oversized Classes	3.5	23	0.2	103	4.4
% Free or Reduced Lunches	142	85	10	120	41.7
Expenditure Pupil	\$532	\$5,312	\$2591	120	\$3,442
County Per Capita Income	\$2,257	\$22,097	\$8,081	120	\$12,371
% El. Schools accredited by SACS	34.8	100	3	48	60.4
% Sec. Schools accredited by SACS	23.1	100	25	83	85.3
<u>Professional Educator Information</u>					
% Career Ladder II & III	6.0	42.5	6.8	119	16.8
Average Professional Salary	\$2,960	\$36,505	\$23,262	120	\$27,465
<u>Student Information (% Diplomas Granted)</u>					
Regular	9.2	98.7	56.3	120	80.4
Honors	7.0	41.7	1	102	13.7
Spec. Education	1.6	8.6	0.4	107	2.4
Certificate of Attendance	0.7	2.9	0.1	66	.9
Seniors not receiving					
Diploma in Spring Grad.	4.3	21.3	0.3	97	6.5
% Students in Voc. Ed. Classes	13.7	98.8	19.8	120	47.6
% Students in Special Ed.	3.9	28.8	8.2	120	16.4
% Chapter 1 Students	8.1	47.5	2.6	120	16.2

Table 6. A Report Card Profile of 121 Tennessee School Districts sampled, 1988-89 data.

121 SCHOOL DISTRICTS

	<u>SD</u>	<u>n</u>	<u>Max</u>	<u>Min.</u>	<u>Report Card Mean</u>
OUTCOMES					
Basic Skills First (BSF)					
			<u>(Percent passing): 8th grade</u>		
Reading	4.9	121	91	65	81
Math	7.7	121	85	43	66
Stanford (STAT); Task 2					
			<u>(Stanine score): 12th grade</u>		
Reading	0.5	121	7	4	5
Math	0.5	121	6	4	5
English	0.6	121	7	4	5
Science	0.5	121	6	3	5
Social Studies	0.5	121	6	4	5
TN Proficiency Test					
			<u>(% Students Passing): 9th grade</u>		
Language	8.6	121	98	56	76
Math	6.4	121	98	59	90
Both	9.3	121	98	48	76
MONEY					
Co./Capita Income (\$) (CCI)	1,962	121	19,318	6,934	12,878
Stud. Expenditure (\$) (EPP)	509	121	4,891	2,318	3,304
Aver. Prof. Salary (\$) (APS)	2,693	121	34,797	21,286	26,756
SCHOOL SYSTEM					
Average Daily Mem. (#) (ADM)	12,395	121	104,788	375	5,874
Student Attendance (%SA)	1.3	121	97.1	90.3	93.6
Oversized Class (%OC)	4.1	110	21.5	0.1	3.8
Fees/Reduced Lunch (%FRL)	14.5	121	86.0	9.0	42.0
Career Ladder II/III (%CL)	5.9	121	41.5	4.1	14.8

As in the 1988-89 study, a correlation matrix (Appendix B) was generated to assess the relationship between each reported characteristic and MSOs. However, four sets of relationships could be determined for 1991: one for Elementary Outcome Level (EOL), one for Middle Outcome Level (MOL), one set for High School Outcome Level (HOL), and one for the System Outcome Level (SOL). The same correlation matrix (see Appendix B) displays relationships between independent variables and system outcomes (SOL).

In response to question 1, one can see in Appendix B correlations exceeding $\pm .50$ between four district characteristics and **EOL**: percent of free or reduced lunches ($r = -.70$), percent of upper career ladder professionals ($r = .62$), percent of special education diplomas ($r = -.53$), and percent of Chapter 1 students ($r = -.68$). Five characteristics correlated above $\pm .50$ with **MOL**: percent of free/reduced lunches ($r = -.69$), percent of upper Career Ladder teachers ($r = .65$), average professional salaries ($r = .51$), percent of Special Education diplomas ($r = -.69$), and percent of Chapter 1 students ($r = -.69$). High correlations (above $\pm .50$) existed between **HOL** and five district characteristics: percent of student attendance ($r = .53$), percent of free/reduced lunches ($r = -.69$), percent of upper Career Ladder teachers ($r = .55$), percent of special education diplomas ($r = .55$), and percent of Chapter 1 students ($r = -.74$). When academic outcomes (MSO) for the entire system were the focus, four system characteristics demonstrated correlations above $\pm .50$: percent free/reduced lunches ($r = -.73$), percent of upper Career Ladder teachers ($r = .64$), percent special education diplomas ($r = -.62$), and percent of Chapter 1 student ($r = -.73$). Academic outcomes at all levels were influenced positively by the presence of expert teachers (upper Career Ladder teachers) and to a somewhat lesser degree by attendance. Attendance most influenced HOL performance. Most severe negative influences on academic performance at all levels were percent of students receiving free/reduced cost lunches and percentage of Special Education and/or Chapter 1 students.

A second set of data relating to question 1 is in Table 7 (also see Appendix C) presented a Guttman's Partial Correlation matrix for each of the four outcome levels and for 15 targeted system characteristics, and a display of the percentage of influence exerted by each system characteristic on each set of MSOs. Some findings produced from these analyses included:

1. The system characteristics having greatest impact on student academic performance were not the same at all levels (see Figure 1). The factor most influencing the EOL was per pupil expenditure (11.2%). Middle school student academic performance was most impacted by the same factor (8.1%). Academic performance among high school students were generally reported by their attendance (13.6%), as has overall academic performance in the school district (13.3%).
2. The factor having least impact on MSOs also varied by school level (see Figure

$\pm .50$ between four district characteristics and **EOL**: percent of free or reduced lunches ($r = -.70$), percent of upper career ladder professionals ($r = .62$), percent of special education diplomas ($r = -.53$), and percent of Chapter 1 students ($r = -.68$). Five characteristics correlated above $\pm .50$ with **MOL**: percent of free/reduced lunches ($r = -.69$), percent of upper Career Ladder teachers ($r = .65$), average professional salaries ($r = .51$), percent of Special Education diplomas ($r = -.69$), and percent of Chapter 1 students ($r = -.69$). High correlations (above $\pm .50$) existed between **HOL** and five district characteristics: percent of student attendance ($r = .53$), percent of free/reduced lunches ($r = -.69$), percent of upper Career Ladder teachers ($r = .55$), percent of special education diplomas ($r = .55$), and percent of Chapter 1 students ($r = -.74$). When academic outcomes (MSO) for the entire system were the focus, four system characteristics demonstrated correlations above $+ .50$: percent free/reduced lunches ($r = -.73$), percent of upper Career Ladder teachers ($r = .64$), percent special education diplomas ($r = -.62$), and percent of Chapter 1 student ($r = -.73$). Academic outcomes at all levels were influenced positively by the presence of expert teachers (upper Career Ladder teachers) and to a somewhat lesser degree by attendance. Attendance most influenced HOL performance. Most severe negative influences on academic performance at all levels were percent of students receiving free/reduced cost lunches and percentage of Special Education and/or Chapter 1 students.

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Table 7 Guttman's partial correlation used to evaluate the 15reprot card categories from 4 educational levels (elementary (EOL), middle schoo (MOL)I, high schoo (HOL)I, and system (SOL), 1990-91 Tennessee school district report card data.

2.	#SCH	ADM	%SA	%EC	%OC	%FRL	EPP	CCI	%CL	APS	D-HS	D-HO	%VO	%SE	%CHI	TOTAL
EOL	0.2	0.1	6.7	0.3	3.4	7.3	11.2	0.4	3.2	1.0	1.1	0.3	0.8	1.5	2.1	39.60
MOL	0.0	0.2	5.9	0.3	2.8	2.3	8.1	0.0	4.9	0.3	1.9	1.5	1.0	0.1	6.0	35.30
HOL	4.5	5.3	13.6	3.5	0.2	0.3	0.4	0.6	0.0	2.7	0.2	0.4	4.5	0.0	4.7	40.90
SOL	0.4	0.9	13.3	1.5	3.1	4.7	9.4	0.4	3.1	0.1	1.5	0.2	2.9	0.2	6.5	48.20

The factor having least impact on MSOs also varied by school level (see Figure 2). The size of the system (ADM) had least influence on elementary student performance (0.1%). Neither the number of schools in a system nor the county per capita income had any influence on MOLs (0.0%). HOL was least influenced by the percentage of Special Education students in the district and the percentage of Career Ladder II and III teachers teaching there (0.0%). Overall MSO in a system was least impacted by average professional salaries of educators (0.1%).

3. Percentage of oversized classes, a rough indicator of the influence of class size on student performance, has increasingly less influence on student academic performance as students progress from elementary to middle to high school. Even at its most influential point in the educational continuum (the elementary years), this factor accounts for only 3.4 percent of whatever it is that influences student academic outcomes.

2. Are there differences in the relationships between dependent and independent variables at different school levels?

The answer to this question is clearly "yes" as demonstrated in Appendix C. We have already reported the differences in system characteristics having most and least impact on student academic outcomes at the various school levels. No system characteristic influences student academic outcomes in the same way at all school/district levels. Further, the combined set of 15 characteristics does not exert the same amount of influence MSOs at any of the four levels studied. This finding will be explored more completely in response to research question 5.

In addition to the relationships demonstrated in Appendix C that have already been reported, a few others are important. The presence of upper Career Ladder teachers appears to have greatest impact on student performance at the middle school level (4.9%). The average professional salaries paid within a school district do not have great influence on student performance, but they have more influence (2.7%) on secondary students than on any other group. The socio-economic level of the community (county per Capita income) had less than 1 percent influence on academic outcomes at any level.

The line graph presented in Figure 1 simply reinforces the statistics presented in the accompanying Appendix C. Note particularly the positions of the influence occupied by percent student attendance expenditure per pupil and percentage of students receiving free/reduced lunches in the relationships to the positions of other variables.

Further, note the bar graph presented in Figure 2 when the percentages of influence for the three levels were summed. High school outcomes do not appear to be influenced by percent of oversized classes, percent of free/reduced lunches or funds spent on student (expenditure per pupil). Middle school outcomes are not really influenced by the district's size (number of schools / average daily membership), percent of enrollment change, county per capita income, average professional salary, or the percentage of in the Special Education classes. Finally, the district's size, enrollment change, or socio-economic factors (County per Capita Income) does not influence elementary student outcomes.

3. How do reported school characteristic relate to each other?

The answer to this question is found in Appendix B. The correlation matrix reveals eight correlations exceeding $\pm .50$. The relationship between number of schools in the system and student attendance is strongly negative ($r = -.54$). The same can be said of the relationships between student attendance and size of school district ($r = -.54$) and between percentage of student receiving free/reduced lunches and attendance ($r = -.54$). None are surprising statistics.

There is a strong positive correlation ($r = .53$) between percentage of special education diplomas awarded in a district and the percentage of students receiving free/reduced cost lunches. A strong positive correlation ($r = .78$) exists between

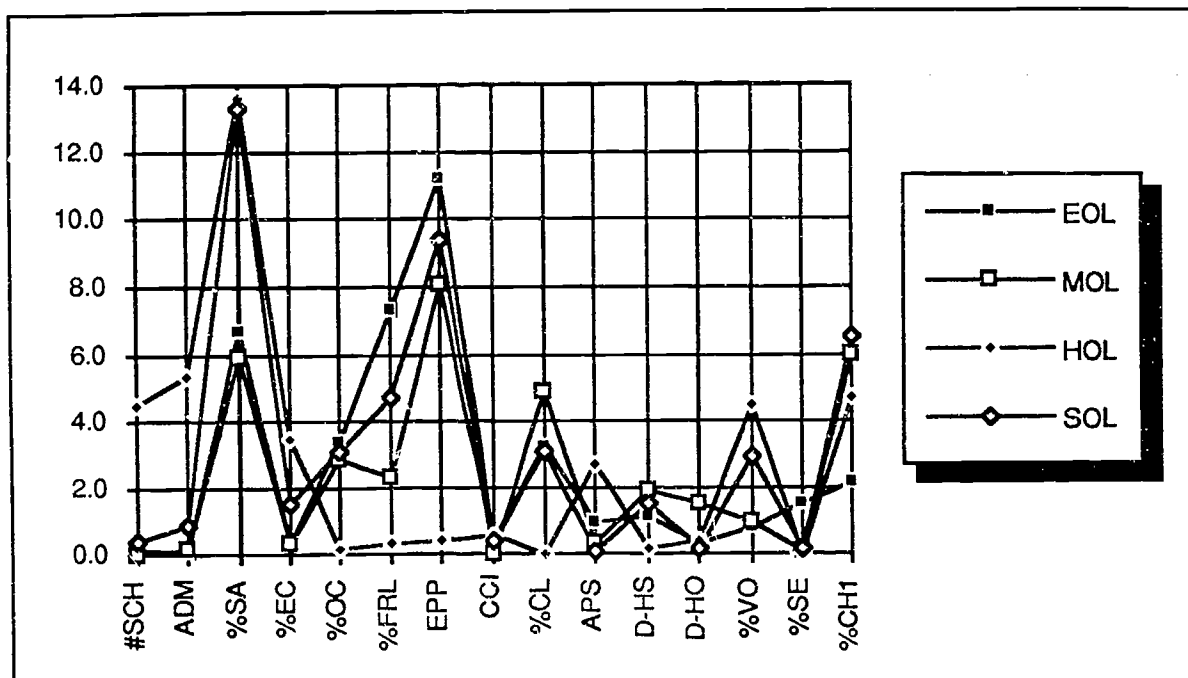


Figure 1 The percentage of influence for the 15 report card categories and the four levels (elementary [EOL], middle [MOL], high school [HOL], and system [SOL], 1990-91 Tennessee report card data.

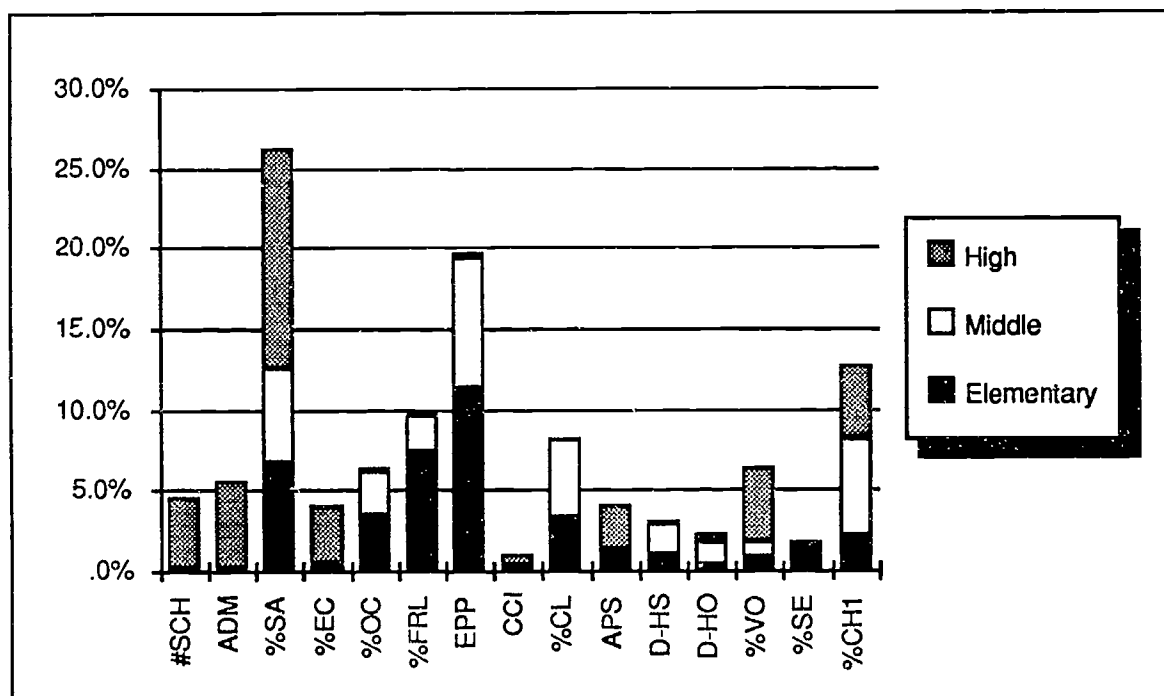


Figure 2 The percentage of influence for the 15 categories and the three educational levels: elementary (EOL), middle (MOL), and high school (HOL).

percentage of Chapter 1 students in a school district and percentage of students receiving free/reduced cost lunches. Special education, free/reduced meals, and Chapter 1 are closely linked.

The relationship between average professional salaries in a system and expenditure per pupil is strongly positive ($r = .79$). Communities that spend more on education pay their teachers and administrators better than do other communities. For example, the very large positive correlation ($r = .99$) between number of schools and size of school district does not tell us much. A strong positive correlation ($r = .51$) is found between percentage of students receiving special education students and percentage of students not receiving diplomas in the spring.

The eighth correlation exceeding .50, this one a positive correlation ($r = .50$) is between percentage of special education diplomas awarded and percentage of students enrolled in vocational education programs. This correlation could reflect the creation of vocationally-oriented programs for special education students, or placement of special education students in vocational programs, regardless of the suitability of the programs to the students.

4. When rank ordered on the basis of student outcomes, how do school districts within the state perform in terms of reported school and community characteristics?

To explore this complex question, the investigators generated rankings by MSO at the four levels being investigated and by system characteristics for the top 10 and bottom 10 producing systems, using system MSOs (SOL) as the anchor. Table 8 and Appendix D present the findings.

Table 8 displays the relationships between SOLs and at school levels. Among important findings are the following:

1. The system having the highest MSO (#72) had the highest elementary and middle school MSOs, but not the highest high school MSO.
2. Eight of the top 10 systems ranked by district MSO were not in the top 10 at the elementary, middle, or high school levels.
3. The district ranking 10 SOL ranked 60th in high school student performance.
4. No district ranking among the bottom 10 districts in district MSO ranked above 94th at any school level.

Table 8 Profiles of School District Rankings By Student Academic Performance, 1990-91 data.

SCH #	Elementary		Middle		High School		System		Differences		
	EOL Z	Rk	MOL Z	Rk	HOL Z	Rk	SOL Z	Rk	Max. Z	Min. Z	Diff.
<u>Top 10 Systems</u>											
72	2.87	1	2.96	1	1.61	4	2.48	1	2.96	1.61	1.36
119	2.09	3	2.14	2	1.25	11.5	1.83	2	2.14	1.25	0.89
59	1.96	4	1.98	3	1.36	9	1.77	3	1.98	1.36	0.62
84	1.53	13	1.98	5	1.68	3	1.75	4	1.98	1.58	0.40
99	1.71	7	1.98	4	1.49	5	1.73	5	1.98	1.49	0.49
108	1.71	7	1.17	14	1.78	2	1.55	6	1.78	1.17	0.60
110	1.71	7	1.19	12	1.42	6.5	1.44	7	1.71	1.19	0.52
37	1.58	13	1.82	7	0.85	19	1.42	8	1.82	0.85	0.96
103	1.71	7	1.18	13	1.29	10	1.39	9	1.71	1.18	0.53
29	2.22	2	1.83	6	-0.03	60.5	1.34	10	2.22	-0.03	2.25
<u>Bottom 10 Systems</u>											
97	-0.75	94	-1.09	112	-0.75	106	-0.86	111	-0.75	-1.09	0.34
16	-0.88	106.5	-0.43	98	-1.36	115	-0.89	112	-0.43	-1.36	0.93
62	-1.40	115.5	-0.60	107	-0.82	108	-0.94	113	-0.60	-1.40	0.80
46	-0.88	106.5	-1.25	115	-1.02	112	-1.05	114	-0.88	-1.25	0.37
10	-1.14	113	-1.72	117	-0.90	109	-1.25	115	-0.90	-1.72	0.81
58	-0.88	106.5	-1.09	113	-1.82	117	-1.26	116	-0.88	-1.82	0.94
78	-1.79	117	-1.25	114	-1.43	116	-1.49	117	-1.25	-1.79	0.53
41	-1.79	118	-2.53	119	-0.75	107	-1.69	118	-0.75	-2.53	1.78
111	-2.43	119	-2.54	120	-2.72	120	-2.56	119	-2.43	-2.72	0.29
30	-3.21	120	-2.52	118	-2.70	119	-2.81	120	-2.52	-3.21	0.69

Appendix D provides data about school district/community characteristics in relation to system level MSO rankings. It also profiles the relationships between system/community factors and HOLs. Note the following:

1. There are no readily identifiable patterns of school/community characteristics among those currently reported that produce high achieving or low achieving school systems.
2. There are no common patterns of school/community characteristics among those reported that appear consistently to produce high achievement or low achievement among high school students.

3. Typical biases about characteristics necessary in a system or community to produce high achievement (e.g., money, larger or smaller schools, small classes) are not confirmed by the data available. Schools and communities with a range of the characteristics currently reported produce both higher and lower academic achievement.

5. **Do the reported school district characteristics appear to represent all or most factors that influence student academic achievement?**

The answer to this question is found in Appendix C. Clearly, the answer is, "NO." Together, the 15 characteristics under investigation provide 39.6 percent of the influence on EOL, 35.3 percent of the influence on MOL, 40.9 percent of whatever influences HOL, and 48.2 percent of the influence on SOL. These factors influence outcomes at different levels in different ways, and together they account for less than half of whatever influences student performance at any level.

6. **Is there evidence of major change in student academic performance from one school level to another within school districts?**

Table 9 provides the data pertinent to this question. Eleven systems demonstrated shifts downward in MSO of at least one standard deviation somewhere between the elementary and the high school levels. Sometimes the shift occurred from elementary to middle school, sometimes from middle to high school. Sometimes the change was continuous from level to level, and sometimes a dramatic shift occurred from elementary to middle, but began to reverse from middle to high school.

Twelve systems demonstrated changes of at least one standard deviation upward over the three school levels. Again the patterns of change were not always constant, and the shifts occurred at different points in different systems.

Some of the notable change patterns can be seen in reviewing the changes in academic rankings of the system from level to level:

1. Six of the 11 systems showing downward shifts in MSO had consistent downward trends from the elementary to middle to high school levels.
2. Three districts showed significant declines in MSO from the elementary to middle school level, but reversed the trend from middle to high school. System #82 demonstrated a dramatic downward shift from elementary to middle school (20th to 78th) and a dramatic shift upward from middle to high school (78th to 18th).

Table 9 School districts with outcomes greater/smaller than ± 1.0 z-scores between the elementary, middle, or high school levels.

SYSTEM #	Elementary		Middle		High School		System		Differences		
	EOL Z	Rk	MOL Z	Rk	HOL Z	Rk	SOL Z	Rk	Max. Z	Min. Z	Diff.
DOWN											
AT Least -1 Standard Deviation at some level (n=11)											
101	<u>1.06</u>	20.5	<u>-1.52</u>	116	-0.69	102	-0.39	85	1.06	-1.52	-2.58
29	<u>2.22</u>	2	1.83	6	<u>-0.03</u>	<u>60.5</u>	1.34	<u>10</u>	2.22	-0.03	-2.25
22	<u>1.45</u>	16	0.55	21	<u>-0.67</u>	<u>100</u>	0.44	<u>30</u>	1.45	-0.67	-2.11
77	<u>-0.10</u>	57	-0.28	73	<u>-1.97</u>	118	-0.78	107	-0.10	-1.97	-1.86
85	<u>1.71</u>	7	1.66	8	<u>-0.15</u>	<u>67.5</u>	1.07	<u>13</u>	1.71	-0.15	-1.85
89	<u>1.58</u>	13	0.20	42	<u>-0.02</u>	58	0.58	24	1.58	-0.02	-1.60
82	<u>1.06</u>	20.5	<u>-0.43</u>	78	0.94	18	0.52	26	1.06	-0.43	-1.49
71	<u>1.58</u>	13	1.33	11	<u>0.09</u>	<u>54</u>	1.00	<u>17</u>	1.58	0.09	-1.49
67	<u>1.19</u>	18	<u>-0.11</u>	52	0.42	35.5	0.50	29	1.19	-0.11	-1.29
9	<u>1.58</u>	13	1.48	10	<u>0.29</u>	<u>42</u>	1.12	<u>11</u>	.58	0.29	-1.29
39	<u>0.54</u>	30.5	-0.43	79	<u>-0.59</u>	<u>94</u>	-0.16	<u>62</u>	0.54	-0.59	-1.13
UP											
At least +1 Standard Deviation at some level (n=12)											
1	<u>-0.88</u>	106.5	0.54	23	<u>1.85</u>	1	0.50	28	1.85	-0.88	+2.73
41	-1.79	118	<u>-2.53</u>	119	<u>-0.75</u>	107	-1.69	118	-0.75	-2.53	+1.78
74	0.54	30.5	<u>-0.27</u>	69	<u>1.37</u>	8	0.55	25	1.37	-0.27	+1.64
90	<u>-1.40</u>	115.5	-0.76	110	<u>0.19</u>	<u>48</u>	-0.66	<u>104</u>	0.19	-1.40	+1.58
55	<u>-0.88</u>	106.5	-0.43	97	<u>0.47</u>	<u>33.5</u>	-0.28	<u>74</u>	0.47	-0.88	+1.35
64	<u>-0.49</u>	76.5	<u>0.84</u>	20	-0.36	78	0.00	57	0.84	-0.49	+1.33
51	<u>-0.88</u>	106.5	0.39	26	<u>-0.51</u>	89.5	-0.33	78	0.39	-0.88	+1.27
52	<u>-0.62</u>	82.5	-0.59	102	<u>0.63</u>	<u>24.5</u>	-0.20	<u>68</u>	0.63	-0.62	+1.25
33	<u>-0.62</u>	82.5	-0.27	66	<u>0.55</u>	29	-0.11	58	0.55	-0.62	+1.17
93	<u>-0.49</u>	76.5	0.21	40	<u>0.64</u>	23	0.12	47	0.64	-0.49	+1.14
47	<u>-1.01</u>	111.5	-0.43	99	<u>0.05</u>	<u>56</u>	-0.46	<u>91</u>	0.05	-1.01	+1.06
31	<u>-0.36</u>	70	0.22	37	<u>0.63</u>	24.5	0.16	43	0.63	-0.36	+1.00

KEY:

SYS = State System ID
 EOL = Elementary Outcome Level
 MOL = Middle School Outcome Level
 HOL = High School Outcome Level
 SOL = System Outcome Level
 Bold = Unusual data

3. Two districts (#71, #9) displayed better student performance (by rank) at the middle school level than at the elementary level, but dropped markedly in the high school rankings.
4. Of the 12 systems demonstrating upward shifts in MSO, 6 showed consistent patterns of improvement at each school level. Perhaps the most dramatic pattern was exhibited by system #1 which ranked 106 (of 120) in EOL, 23 in MOL and first in HOL. Data for this system also clearly point up the limited value of district level rankings. In the composite, this system ranked 28th in SOL.
5. Three systems (#41, #74, #52) displayed downward patterns of achievement from elementary to middle school, but strong upward patterns from middle to high school.
6. Three systems (#90, #64, #51) showed strong upward trends in MSO and ranking from the elementary to middle school level, but reversed the pattern from the middle to the secondary level.

The causes of the changes found among these 23 school districts are unknown. They could relate to the quality of instruction students received at the several levels. They could reflect an emphasis on "teaching to the test" at certain levels. They could indicate the lack of alignment between outcome measure (tests) and curriculum. They might be caused, in part, by the movement to a new set of tests (TCAP) during the year being investigated. What is clear is that outcome data and rankings reported at the system level have limited utility in identifying what is happening academically within a system or in targeting areas for improvement.

IV. CONCLUSIONS AND IMPLICATION OF THE STUDY

As in the initial study, investigators framed a final research question as a means of developing useful conclusions and implications.

10. **How might the findings of this study inform educational policy at state and local levels?**

Several of the conclusions the 1988-89 study were reinforced by the results of the 1990-91 investigation. Specifically, policymakers at all levels need to consider that few of the individual inputs commonly associated in people's minds with production of student achievement have much impact on student performance. With the exception of student attendance (and perhaps per pupil expenditure) treatment of any isolated

variable will have little effect. If we want to improve or change student performance, a systemic approach to education change is an absolute necessity.

In the 1988-89 study, the researchers concluded that the eight system characteristics taken from the Tennessee Report Cards for analysis were of limited value; i.e., they gave limited information to policymakers and educators who want to improve education in their states and local communities, because these variables accounted for so little of the influence on student outcomes. In the 1990-91 study, 15 variables were available for examination. Again, they do not appear to be the "right ones," i.e., they don't tell us enough about what influences student achievement. Based on the two studies, knowledge gained from review of related research and experience in schools, the investigators urge that consideration be given to collecting, reporting, and analyzing data on organization culture, student motivation, parental involvement, instructional methodologies, curriculum features and other factors that may have significant influence on student performance.

When reviewing the results of the 1988-89 study, the investigators suggested that building-level data are probably more useful and more valid than district-level data for use in report cards. That conclusion is confirmed by the present study. Major variations and fluctuations in results appeared from school level to school level within individual school districts. Identification of sources of these differences could be useful to educators and policymakers seeking improvement. Even the 1990-91 study did not have building-level data available for analysis. School-level data may reflect conditions across several schools.

Report cards are only as good as the assessments used to determine student performance. The 1988-89 study raised some questions about the assessments being used. Those questions are highlighted in the findings of the current study. Enough variations in similar analyses from study one to study two exist to suggest that the differences in student outcome measures are probably one cause.

Finally, "What is the purpose of School District Report Cards?" The question is not an antagonistic one, but a supportive one. Definition of purpose or purposes is central to assessing the value of report card contents. A recent editorial in the Nashville Tennessean (1992) speaks of Tennessee's report cards in glowing terms:

It (the Report Card) is simply the most comprehensive report in this or any state on school funding and student performance. . .

The reports are more than just a tool for comparison, however; they can empower local communities to act. The reports give Tennesseans the power to get the job done and make the grade for better schools. (p.40).

If the purpose of the Tennessee Report Card is simply to report the status of a community's schools and selected factors generally associated with them, the current report card does that reasonably well. If the purpose is to provide citizens, parents, educators and policymakers meaningful information upon which to make decisions for improvement, much is lacking. At least 50 percent of what influences student performance has not been reported. This can provide serious impediments to school improvement if education leaders focus on what is reported as the way to raise their schools in the rankings, rather than focusing upon the non-reported, but more important, factors.

V. References

1. Bobbett, G. C., French, R. L., Achilles, C.M., & McNamara, J. F. Student outcome and policymaking: an analysis of Tennessee's report cards on schools (why do we bet on .25 when .75 is running loose?), Paper presented at the annual meeting of the American Association of School Administrators, San Diego, CA, February, 1992. (ERIC Document Reproduction Service No. ED 342 804).
2. Bobbett, G. C., French, R. L., & Achilles, C.M. What policymakers can learn from school report cards: analysis of Tennessee's report cards on schools, Paper presented at the annual meeting of the American Educational Research Association (AERA), May, 1992. (ERIC Document Reproduction Service No. TM 018 929).
3. Nashville Tennessean, October 4, 1992, p. 40. Editorial.

Appendix A

Results of Kaiser Test of Variable Sampling Adequacy 20 report card variables

	MSA	.226		.228		.230		.230
	<u>EOL</u>	<u>.34</u>	<u>MOL</u>	<u>.46</u>	<u>HOL</u>	<u>.51</u>	<u>SOL</u>	<u>.44</u>
1	#SCH	.31	#SCH	.27	#SCH	.28	#SCH	.30
2	ADM	.30	ADM	.27	ADM	.28	ADM	.30
3	%SA	.27	%SA	.46	%SA	.46	%SA	.36
4	%EC	.24	%EC	.38	%EC	.41	%EC	.36
5	%OC	.35	%OC	.7	%OC	.45	%OC	.64
6	%FRL	.29	%FRL	.24	%FRL	.25	%FRL	.25
7	EPP	.24	EPP	.41	EPP	.40	EPP	.34
8	CCI	.13	CCI	.10	CCI	.10	CCI	.10
9	<u>%ES</u>	<u>.19</u>	<u>%ES</u>	<u>.17</u>	<u>%ES</u>	<u>.16</u>	<u>%ES</u>	<u>.16</u>
10	<u>%HS</u>	<u>.17</u>	<u>%HS</u>	<u>.14</u>	<u>%HS</u>	<u>.15</u>	<u>%HS</u>	<u>.14</u>
11	%CL	.24	%CL	.20	%CL	.20	%CL	.20
12	APS	.28	APS	.44	APS	.46	APS	.41
13	D-HS	.18	D-HS	.15	D-HS	.16	D-HS	.16
14	D-HO	.19	D-HO	.17	D-HO	.17	D-HO	.18
15	<u>D-SE</u>	<u>.22</u>	<u>D-SE</u>	<u>.20</u>	<u>D-SE</u>	<u>.20</u>	<u>D-SE</u>	<u>.21</u>
16	<u>D-CA</u>	<u>.12</u>	<u>D-CA</u>	<u>.10</u>	<u>D-CA</u>	<u>.11</u>	<u>D-CA</u>	<u>.11</u>
17	<u>D-NR</u>	<u>.21</u>	<u>D-NR</u>	<u>.18</u>	<u>D-NR</u>	<u>.18</u>	<u>D-NR</u>	<u>.19</u>
18	<u>%VO</u>	<u>.14</u>	<u>%VO</u>	<u>.50</u>	<u>%VO</u>	<u>.29</u>	<u>%VO</u>	<u>.19</u>
19	<u>%SE</u>	<u>.16</u>	<u>%SE</u>	<u>.13</u>	<u>%SE</u>	<u>.14</u>	<u>%SE</u>	<u>.15</u>
20	%CH1	.27	%CH1	.26	%CH1	.27	%CH1	.30

Underline/bold = Tennessee Report Card Categories
that do not pass the test of independence

Appendix B

Correlation Matrix Displaying Relationships Between Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
EOL	1.00																			
MOL	.87	1.00																		
HOL	.86	.84	1.00																	
SOL	.97	.95	.94	1.00																
1 #SCH	-.24	-.25	-.16	-.23	1.00															
2 ADM	-.26	-.27	-.19	-.26	.99	1.00														
3 %SA	.41	.47	.53	.49	-.54	1.00														
4 %EC	.35	.42	.42	.41	-.36	-.32	.40	1.00												
5 %OC	-.24	-.24	.01	-.18	-.01	.01	.09	.33	1.00											
6 %FRL	-.70	-.69	-.73	.43	.44	-.54	-.44	-.16	1.00											
7 EPP	.33	.33	.23	.31	.34	.31	-.39	-.02	-.40	.19	1.00									
8 CCI	.01	.08	-.05	.02	-.06	-.07	-.25	.06	-.33	.11	.29	1.00								
9 %ES	-.10	.06	-.19	-.07	-.07	-.01	-.15	.16	-.18	.31	.16	.26	1.00							
10 %HS	-.13	-.02	-.17	-.11	.08	.10	-.41	-.02	-.18	.37	.31	.41	.60	1.00						
11 %CL	.62	.65	.55	.64	-.13	-.15	.12	.31	-.35	-.33	.34	.17	.10	.04	1.00					
12 APS	.43	.51	.40	.47	.40	.39	-.24	-.03	-.39	-.07	.79	.25	.21	.23	.40	1.00				
13 D-HS	-.04	-.07	-.11	-.07	-.14	-.14	.12	-.41	-.01	-.06	-.18	-.21	-.36	-.18	-.39	-.20	1.00			
14 D-HO	.46	.49	.42	.48	-.04	-.09	.15	.32	-.25	-.33	.25	-.07	-.07	-.12	.62	.28	.61	1.00		
15 D-SE	.53	.69	.55	.62	.20	.22	-.41	-.07	.29	.53	.17	.15	.18	.31	.42	-.36	-.25	-.33	1.00	
16 D-CA	-.25	-.08	-.05	-.14	.16	.19	.25	.25	.37	.23	-.06	-.04	.29	-.06	-.12	.02	-.40	-.07	.23	1.00
17 D-NR	-.37	-.36	-.24	-.24	.19	.24	-.27	.17	.23	.37	-.01	.34	.52	.33	-.12	.02	-.56	-.31	.51	.53
18 %VO	-.10	-.02	-.01	-.05	.01	-.01	.07	.06	-.08	.22	.36	-.06	.02	.33	.05	.01	-.17	.09	.13	.09
19 %SE	.15	-.04	.07	.07	-.34	-.37	-.04	.31	.07	-.07	.14	.24	-.14	.23	.29	-.21	-.31	.18	.22	.16
20 %CH1	-.68	-.69	-.74	-.73	.04	.05	-.22	-.37	-.13	.78	-.06	.18	.22	.26	-.45	-.43	.12	-.46	.53	.17

Bold/Underline = ≥.50

Positive

1	.79	APS v. EPP
2	.78	%CH1 v %FRL
3	.65	%CL v MOL
4	.64	%CL v. SOL
5	.62	%CL v EOL
6	.62	%CL v D-HO
7	.55	%CL v. HOL
8	.53	%CH v D-SE
9	.53	D-NR v D-CA
10	.53	%SA v HOL

Negative

1	-.74	%CH1 v HOL
2	-.73	%FRL v SOL
3	-.73	%CH1 v SOL
4	-.70	%FRL v EOL
5	-.69	%FRL v MOL
6	-.69	%FRL v HOL
7	-.69	D-SE v MOL
8	-.69	%CH v MOL
9	-.68	%CH v EOL
10	-.62	D-SE v SOL

Appendix C

Partial Correlations and Percent of Influence of 15 School District
Characteristics On Mean Student Outcomes

	EOL	#SCH	ADM	%SA	%EC	%OC	%FRL	EPP	CCI	%CL	APS	D-HS	D-HO	%VO	%SE	%CH1	
EOL	.58																
1 #SCH	-.05	.99															.2%
2 ADM	.03	.99	.99														.1%
3 %SA	.26	-.06	.04	.42													6.7%
4 %EC	.06	-.13	.12	.33	.45												.3%
5 %OC	-.19	-.01	.01	-.04	.01	.33											3.4%
6 %FRL	-.27	-.11	.15	-.04	-.14	.02	.74										7.3%
7 EPP	.34	.29	-.31	-.19	.13	.07	.56	.84									11.2%
8 CCI	-.06	-.01	.00	-.06	.17	-.35	.07	.04	.26								.4%
9 %CL	.18	.07	-.09	.07	.03	.04	.19	-.29	-.07	.44							3.2%
10 APS	-.10	-.28	.33	.07	-.18	-.19	-.52	.83	.00	.42	.89						1.0%
11 D-HS	.10	.04	-.06	.25	-.37	-.11	-.05	.23	-.09	.02	-.31	.73					1.1%
12 D-HO	.06	.15	-.16	.17	-.24	-.13	-.09	.17	-.02	.19	-.19	-.75	.69				.3%
13 %VO	-.09	-.04	.05	.05	.27	-.06	-.18	.40	-.16	.08	-.28	-.02	-.09	.38			.8%
14 %SE	.12	.01	-.04	.01	-.27	.11	-.05	.21	.26	.11	-.27	-.27	-.09	.16	.38		1.5%
15 %CH1	-.15	-.05	.02	.13	-.23	-.30	.42	.03	-.08	-.03	-.13	-.24	-.18	.22	-.04	.63	2.1%
Total																	39.7%

	MOL	#SCH	ADM	%SA	%EC	%OC	%FRL	EPP	CCI	%CL	APS	D-HS	D-HO	%VO	%SE	%CH1	
MOL	.65																
1 #SCH	.00	.99															.0%
2 ADM	-.04	.99	.99														.2%
3 %SA	.24	-.07	.06	.42													5.9%
4 %EC	.05	-.13	.12	.33	.45												.3%
5 %OC	-.17	.00	.00	-.05	.01	.32											2.8%
6 %FRL	-.15	-.10	.14	-.08	-.15	.05	.72										2.3%
7 EPP	.29	.28	-.29	-.18	.13	.05	.53	.84									8.1%
8 CCI	-.02	-.01	.00	-.07	.17	-.34	.08	.02	.26								.0%
9 %CL	.22	.06	-.08	.06	.03	.04	.17	-.30	-.07	.45							4.9%
10 APS	.06	-.28	.33	.03	-.19	-.17	-.49	.80	.01	.39	.89						.3%
11 D-HS	.14	.03	-.05	.24	-.37	-.11	-.06	.23	-.09	.00	-.32	.73					1.9%
12 D-HO	-.12	.15	-.17	.21	-.23	-.16	-.12	.22	-.03	.23	-.19	-.72	.69				1.5%
13 %VO	-.10	-.03	.04	.05	.27	-.06	-.17	.40	-.16	.09	-.26	-.02	-.11	.38			1.0%
14 %SE	-.04	.00	-.03	.05	-.26	.08	-.09	.27	.26	.14	-.29	-.25	-.09	.14	.37		.1%
15 %CH1	-.25	-.04	.01	.15	-.22	-.31	.43	.05	-.08	.00	-.10	-.21	-.21	.20	-.06	.65	6.0%
Total																	35.3%

	HOL	#SCH	ADM	%SA	%EC	%OC	%FRL	EPP	CCI	%CL	APS	D-HS	D-HO	%VO	%SE	%CH1	
HOL	.58																
1 #SCH	.21	.99															4.5%
2 ADM	-.23	.99	.99														5.3%
3 %SA	.37	-.14	.13	.47													13.6%
4 %EC	.19	-.16	.16	.25	.47												3.5%
5 %OC	-.05	.01	-.01	-.07	.01	.30											.2%
6 %FRL	-.05	-.09	.14	-.09	-.15	.07	.72										.3%
7 EPP	.07	.27	-.29	-.13	.14	.01	.51	.83	CCI								.4%
8 CCI	-.08	.01	-.02	-.04	.18	-.35	.08	.02	.27								.6%
9 %CL	-.01	.07	-.09	.12	.04	.00	.15	-.25	-.08	.42							.0%
10 APS	.16	-.30	.35	-.02	-.22	-.17	-.49	.82	.02	.41	.89						2.7%
11 D-HS	.04	.02	-.05	.25	-.37	-.13	-.08	.28	-.09	.04	-.32	.73					.2%
12 D-HO	-.06	.16	-.17	.20	-.22	-.14	-.11	.20	-.03	.20	-.19	-.75	.69				.4%
13 %VO	-.21	.02	.00	.10	.30	-.05	-.16	.40	-.17	.06	-.23	-.02	-.11	.40			4.5%
14 %SE	-.02	.01	-.03	.04	-.25	.09	-.09	.27	.26	.13	-.28	-.26	-.08	.14	.37		.0%
15 %CH1	-.22	.01	-.04	.17	-.19	-.28	.46	-.01	-.09	-.06	-.08	-.24	-.20	.18	-.06	.64	4.7%
Total																	40.9%

	SOL	#SCH	ADM	%SA	%EC	%OC	%FRL	EPP	CCI	%CL	APS	D-HS	D-HO	%VO	%SE	%CH1	
SOL	.70																
1 #SCH	.07	.99															.4%
2 ADM	-.10	.99	.99														.9%
3 %SA	.37	-.09	.08	.46													13.3%
4 %EC	.12	-.14	.13	.28	.46												1.5%
5 %OC	-.18	.01	-.01	-.02	.02	.32											3.1%
6 %FRL	-.22	-.08	.13	-.03	-.13	.04	.73										4.7%
7 EPP	.31	.26	-.27	-.21	.11	.06	.54	.84									9.4%
8 CCI	-.07	.00	-.01	-.05	.17	-.35	.07	.04	.27								.4%
9 %CL	.18	.05	-.07	.05	.02	.04	.18	-.29	-.07	.44							3.1%
10 APS	.04	-.28	.33	.03	-.19	-.17	-.49	.80	.01	.40	.89						.1%
11 D-HS	.12	.03	-.05	.22	-.38	-.11	-.06	.23	-.09	.01	-.32	.73					1.5%
12 D-HO	-.05	.15	-.17	.19	-.23	-.15	-.11	.20	-.03	.21	-.20	-.74	.69				.2%
13 %VO	-.17	-.02	.03	.08	.29	-.07	-.19	.42	-.17	.09	-.26	-.01	-.10	.39			2.9%
14 %SE	.04	.00	-.03	.02	-.26	.09	-.08	.24	.26	.12	-.29	-.27	-.08	.15	.37		.2%
15 %CH1	-.25	-.03	-.01	.18	-.20	-.31	.40	.06	-.09	-.01	-.11	-.21	-.20	.18	-.04	.65	6.5%
Total																	48.2%

	#SCH	ADM	%SA	%EC	%OC	%FRL	EPP	CCI	%CL	APS	D-HS	D-HO	%VO	%SE	%CH1	Total
EOL	0.2	0.1	6.7	0.3	3.4	7.3	11.2	0.4	3.2	1.0	1.1	0.3	0.8	1.5	2.1	39.60
MOL	0.0	0.2	5.9	0.3	2.8	2.3	8.1	0.0	4.9	0.3	1.9	1.5	1.0	0.1	6.0	35.30
HOL	4.5	5.3	13.6	3.5	0.2	0.3	0.4	0.6	0.0	2.7	0.2	0.4	4.5	0.0	4.7	40.90
SOL	0.4	0.9	13.3	1.5	3.1	4.7	9.4	0.4	3.1	0.1	1.5	0.2	2.9	0.2	6.5	48.20

**Profiles of School District Rankings by District Mean Student Outcomes
and School District Community Characteristics**

System Outcome Level (SOL)**Top 12 SOL Districts**

Rank	District #	#SCH	ADM	%SA	%EC	%OC	%FRL	EPP	CCI	%CL	APS	D-HS	D-HO	%VO	%SE	%CH1
1	72	94	62	20	44	17	7	14	21	3	6	61	24	34	25	22
2	119	13	12	49	9	29	1	24	1	18	20	50	45	43	28	1
3	59	37	34	41	5	4	64	2	18	6	3	4	4	97	84	30
4	84	60	45	54	1		29	1	11	4	2	117		45	114	4
5	99	5	4	49	13	74	5	69	4	77	16	104		47	30	2
6	108	71	68	54	12		29	10	27	23	19	5	15	4	106	17
7	110	83	91	9	41		32	16	35	2	13	104		33	10	54
8	37	71	78	7	14	4	35	4	56	78	10	85	82	115	75	45
9	103	8	10	45	83		35	7	18	74	17	50	58	53	113	40
10	29	94	83	79	65	1	46	12	93	9	14	94	83	107	33	60
11	9	60	59	84	88	12	46	3	18	44	5	76	54	90	28	39
12	57	42	35	64	104	32	83	9	14	39	24	98		100	80	94

Bottom 12 SOL Districts

109	92	83	57	106	118	48	91	62	58	61	79	38	41	46	52	99
110	42	42	42	49	53	14	110	96	97	79	95	94	89	70	49	111
111	97	94	97	109	65	44	91	22	99	30	72	117		7	120	96
112	16	30	44	112	107	91	107	54	75	92	103	61	71	99	89	113
113	62	83	41	35	58	76	110	114	87	41	96	85		73	33	97
114	46	83	50	15	82		116	70	86	89	75	33	32	65	5	116
115	10	18	26	120	92	98	110	61	100	100	84	13	56	110	58	114
116	58	50	86	117	114	74	112	33	116	105	119	29	5	102	100	107
117	78	1	1	118	98	49	117	13	4	51	12	23	91	73	8	105
118	41	83	109	98	120		120	27	119	110	118	76	29	113	119	119
119	111	94	82	114	53	103	96	117	106	90	109	100		78	71	103
120	30	60	43	90	102	46	119	90	63	117	113	61	95	59	47	120

High School Outcome Level (HOL)**Top 12 HOL Districts**

Rank	District	#SCH	ADM	%SA	%EC	%OC	%FRL	EPP	CCI	%CL	APS	D-HS	D-HO	%VO	%SE	%CH1
1	1	104	102	15	70		29	5	21	7	1	44		92	2	25
2	108	71	68	54	12		29	10	27	23	19	5	15	4	106	17
3	84	60	45	54	1		29	1	11	4	2	117		45	114	4
4	72	94	62	20	44	17	7	14	21	3	6	61	24	34	25	22
5	99	5	4	49	13	74	5	69	4	77	16	104		47	30	2
6	110	83	91	9	41		32	16	35	2	13	104		33	10	54
7	54	104	104	4	39	36	40	78	72	32	54	76	29	3	39	14
8	74	113	105	3	32	32	51	110	72	26	48	16	36	28	91	74
9	59	37	34	41	5	4	64	2	18	6	3	4	4	97	84	30
10	103	8	10	45	83		35	7	18	74	17	50	58	53	113	40
11	119	13	12	49	9	29	1	24	1	18	20	50	45	43	28	1
12	91	28	19	32	77	87	25	103	36	28	41	81	74	52	49	20

Bottom 12 HOL Districts

109	10	18	26	120	92	98	110	61	100	100	84	13	56	110	58	114
110	83	71	64	38	72	44	101	89	109	32	94	89	78	30	74	110
111	88	104	113	54	91	69	91	52	78	116	107	108	99	112	110	52
112	46	83	50	15	82		116	70	86	89	75	33	32	65	5	116
113	21	71	99	23	112	27	60	76	69	35	82	89	85	76	42	99
114	92	83	57	106	118	48	91	62	58	61	79	38	41	46	52	99
115	16	30	44	112	107	91	107	54	75	92	103	61	71	99	89	113
116	78	1	1	118	98	49	117	13	4	51	12	23	91	73	8	105
117	58	50	86	117	114	74	112	33	116	105	119	29	5	102	100	107
118	77	83	101	84	119	97	91	65	101	9	55	26	6	40	115	42
119	30	60	43	90	102	46	119	90	63	117	113	61	95	59	47	120
120	111	94	82	114	53	103	96	117	106	90	109	100		78	71	103